CLAIMS

1-50. (canceled)

51. (currently amended) A lineariser for reducing distortion of an output signal of signal handling equipment, the lineariser comprising:

a divider adapted to divide a raw signal into a plurality of parallel components having different frequencies or bands of frequencies; and

means for [[by]] processing [[a]] each component of the raw signal with data selected from a store in response to the amplitude and frequency content of the raw signal, wherein the store comprises a group of look-up tables, each table corresponding to a component of the raw signal having a different frequency or band of frequencies, and each table comprising a table of coefficients, each coefficient associated with a value of the amplitude of the component of the table.

52-61. (canceled)

62. (currently amended) A method of reducing distortion of an output signal of signal handling equipment, said method comprising the steps of:

dividing the raw signal into a plurality of parallel components having different frequencies or bands of frequencies,

selecting data from a store in response to the amplitude and frequency content of [[a]] the raw signal, and

using the data in distortion reduction processing of the raw signal, wherein the store comprises a group of look-up tables, each table corresponding to a component of the raw signal having a different frequency or band of frequencies, and each table comprising a table of coefficients, each coefficient associated with a value of the amplitude of the component of the table.

63-72. (canceled)

73. (currently amended) A method for reducing distortion in an output signal generated by signal handling equipment, the method comprising:

(a) dividing a raw signal into a plurality of parallel raw components, each raw component having an amplitude and each raw component corresponding to a different frequency or band of frequencies;

(b) generating a modified component for each raw component based on the amplitude of the raw component by retrieving, for each raw component, a value for the corresponding modified component from a look-up table (LUT) based on the amplitude of the raw component, wherein each different frequency or band of frequencies has its own LUT; and

(c) combining the plurality of modified components to generate a modified signal, wherein:

the signal handling equipment is an amplifier adapted to amplify the modified signal; and

the modified signal is generated by applying pre-distortion to the raw signal, wherein the pre-distortion reduces the distortion in the output signal generated by the amplifier.

74. (canceled)

75. (previously presented) The invention of claim 73, wherein:

step (a) comprises applying different copies of the raw signal to a plurality of band-pass filters to generate the plurality of raw components, each band-pass filter corresponding to a different frequency or band of frequencies; and

step (c) comprises summing the plurality of modified components to generate the modified signal.

76. (previously presented) The invention of claim 73, wherein:
step (a) comprises transforming the raw signal from a time domain to a frequency domain to generate the plurality of raw components; and
step (c) comprises transforming the plurality of modified components from the frequency domain to the time domain to generate the modified signal.

77. (canceled)

78. (previously presented) The invention of claim 73, further comprising (d) adaptively updating values stored in each LUT.

79. (previously presented) The invention of claim 78, wherein step (d) comprises:
(1) generating a feedback signal based on the output signal of the signal handling equipment;
(2) dividing the feedback signal into a plurality of feedback components, each feedback component corresponding to a different frequency or band of frequencies;
(3) generating, for each frequency or band of frequencies, an update value for the corresponding LUT based on the corresponding raw component and the corresponding feedback component; and
(4) updating each LUT based on the corresponding update value.

80. (previously presented) The invention of claim 79, wherein step (d)(3) comprises applying the corresponding raw component and the corresponding feedback component to a divider to generate the corresponding update value.

81. (previously presented) The invention of claim 80, wherein step (d)(3) further comprises integrating, over time, outputs from the divider to generate the corresponding update value.

82. (currently amended) An apparatus for reducing distortion in an output signal generated by signal handling equipment, the apparatus comprising:
(a) means for dividing a raw signal into a plurality of <u>parallel</u> raw components, each raw component having an amplitude and each raw component corresponding to a different frequency or band of frequencies;
(b) means for generating a modified component for each raw component based on the amplitude of the raw component, wherein:
means (b) comprises a plurality of LUTs;
each LUT corresponds to a different frequency or band of frequencies; and
each LUT is adapted to provide, for the corresponding raw component, a value for the corresponding modified component based on the amplitude of the raw component; and
(c) means for combining the plurality of modified components to generate a modified signal<u>, wherein:</u>
<u>the signal handling equipment is an amplifier adapted to amplify the modified signal; and</u>
<u>the modified signal is generated by applying pre-distortion to the raw signal, wherein the pre-distortion reduces the distortion in the output signal generated by the amplifier</u>.

83. (canceled)

84. (previously presented) The invention of claim 82, wherein:

means (a) comprises a plurality of band-pass filters connected to receive different copies of the raw signal and adapted to generate the plurality of raw components, each band-pass filter corresponding to a different frequency or band of frequencies; and

means (c) comprises a combiner adapted to sum the plurality of modified components to generate the modified signal.

85. (previously presented) The invention of claim 82, wherein:

means (a) comprises a transform adapted to transform the raw signal from a time domain to a frequency domain to generate the plurality of raw components; and

means (c) comprises an inverse transform adapted to transform the plurality of modified components from the frequency domain to the time domain to generate the modified signal.

86. (canceled)

87. (previously presented) The invention of claim 82, further comprising (d) means for adaptively updating values stored in each LUT.

88. (previously presented) The invention of claim 87, wherein means (d) comprises:

(1) means for generating a feedback signal based on the output signal of the signal handling equipment;

(2) means for dividing the feedback signal into a plurality of feedback components, each feedback component corresponding to a different frequency or band of frequencies;

(3) a feedback and control mechanism adapted to generate, for each frequency or band of frequencies, an update value for the corresponding LUT based on the corresponding raw component and the corresponding feedback component; and

(4) means for updating each LUT based on the corresponding update value.

89. (previously presented) The invention of claim 88, wherein the feedback and control mechanism comprises a divider adapted to receive the corresponding raw component and the corresponding feedback component to generate the corresponding update value.

90. (previously presented) The invention of claim 89, wherein the feedback and control mechanism further comprises an integrator adapted to integrate, over time, outputs from the divider to generate the corresponding update value.

91. (new) A method for reducing distortion in an output signal generated by signal handling equipment, the method comprising:

(a) dividing a raw signal into a plurality of raw components, each raw component having an amplitude and each raw component corresponding to a different frequency or band of frequencies;

(b) generating a modified component for each raw component based on the amplitude of the raw component by retrieving, for each raw component, a value for the corresponding modified component from a look-up table (LUT) based on the amplitude of the raw component, wherein each different frequency or band of frequencies has its own LUT;

(c) combining the plurality of modified components to generate a modified signal;

(d) generating a feedback signal based on the output signal of the signal handling equipment;

(e) dividing the feedback signal into a plurality of feedback components, each feedback component corresponding to a different frequency or band of frequencies;

(f) generating, for each frequency or band of frequencies, an update value for the corresponding LUT by applying the corresponding raw component and the corresponding feedback component to a divider; and

(g) updating each LUT based on the corresponding update value.

92. (new) The invention of claim 91, wherein:

the signal handling equipment is an amplifier adapted to amplify the modified signal; and

the modified signal is generated by applying pre-distortion to the raw signal, wherein the pre-distortion reduces the distortion in the output signal generated by the amplifier.

93. (new) The invention of claim 91, wherein step (d)(3) further comprises integrating, over time, outputs from the divider to generate the corresponding update value.

94. (new) An apparatus for reducing distortion in an output signal generated by signal handling equipment, the apparatus comprising:

(a) means for dividing a raw signal into a plurality of raw components, each raw component having an amplitude and each raw component corresponding to a different frequency or band of frequencies;

(b) means for generating a modified component for each raw component based on the amplitude of the raw component by retrieving, for each raw component, a value for the corresponding modified component from a look-up table (LUT) based on the amplitude of the raw component, wherein each different frequency or band of frequencies has its own LUT;

(c) means for combining the plurality of modified components to generate a modified signal;

(d) means for generating a feedback signal based on the output signal of the signal handling equipment;

(e) means for dividing the feedback signal into a plurality of feedback components, each feedback component corresponding to a different frequency or band of frequencies;

(f) means for generating, for each frequency or band of frequencies, an update value for the corresponding LUT by applying the corresponding raw component and the corresponding feedback component to a divider; and

(g) means for updating each LUT based on the corresponding update value.

95. (new) The invention of claim 94, wherein:

the signal handling equipment is an amplifier adapted to amplify the modified signal; and

the modified signal is generated by applying pre-distortion to the raw signal, wherein the pre-distortion reduces the distortion in the output signal generated by the amplifier.

96. (new) The invention of claim 94, wherein the feedback and control mechanism further comprises an integrator adapted to integrate, over time, outputs from the divider to generate the corresponding update value.